G. R. S. IX-5]

Previous references.

Gen 23-16 (1-3)

1927-18

(Gen)

Later references.

Preserve

File No. 73-17

Serial Nos. 1, 3, 4 to 5

32

GENERAL AND REVENUE SECRETARIAT.

Serial Nos. January

Part B for Dec 1926

SUBJECT.

Ten years programme of work in the Department of Mines & Geology

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WD 2243—GPB—20,000—14-6-20

G. R. S. III—1] 1917-18

GENERAL AND REVENUE SECRETARIAT.

(Geol)

NOTES.

File No. 73-17

FILE HEADING.

Ten years programme of work in the dept of Mines & Geology.

From

The offg Director, Dept of Geology.

No. 1552 Dated 2-1-18. Received 3-1-18.

Diary No. 4948	Enclos.	Spare Copies.	Serial No. 1

BRIEF ABSTRACT OF LETTER.

Submits for orders of Govt a programme of work for the next 10 years & proposals for improving the prospects of the staff in developing the work of the Dept and requests that a lumpsum annual grant of Rs 10000/- may be sanctioned to carry on the prospecting & experimental works.

NOTES AND ORDERS.

Second Member's order on the abstract of Capital dt 3-1-18.

"Please put up."

Submitted 2) This will be worked up after perusal by the Member.

AHS 4-1-18.

2 Member 3) Third time

Cash - I attended this the

Chief Secy

Hd. 5.1.18.

NOTES—First Sheet.

WD 1282—GPB—20,000—18-11-16

AD 1283—GPE—60,000—1-12-16—S.

V

General and Revenue Secretariat. | Geol File No. 73 of 1917-18.

Serial No.

3) The diagram proposals should be referred to the recg. proposals no addl staff has been applied for but trained staff recommended for Geol Survey staff

4) This is a case which should be discussed only after the main question is in the record The Director should be asked to submit him recommendations regarding this recg. The rough diagram might be returned with observations

4
9.1 15/1/18

5) A typed statement is put up.

~~Orders are~~ 6) The Director's proposal practically is that his department will devote its attention chiefly to Mineral Exploration and Survey — He points out difficulties in the way of devoting adequate attention to the development of Mining and Metallurgical Industries — He may be asked to devote as much attention as possible

NOTE—Contn. sheet.

ND 1283—GPB—60,000—1-12-16—S.

G. R. S. III-2]

General and Revenue Secretariat. | Geol File No. 73 of 1917-18.

Serial No.

to the latter question

Orders are solicited on the following points.

(1) Whether it is possible to supply cheap electric power at the Smelting works in the near future

Perhaps not

(2) Whether Mr Sellar may be relieved of his duties as Inspector of Mines dept appointed Inspector or Chief Inspector of Explosives exclusively

(3) Whether in the event of his appointment exclusively as Inspector of Explosives he should be given an Assistant in that dept and what pay and status should he have?

(4) Whether addl Sub. Inspectors of Mines should be appointed? How many and on what pay? (The pay of the present Sub Inspector of Mines is Rs 150 - 50 - 250 plus a local allowance of Rs 50).

(5) Whether a geological map on a half inch scale should be

Flag K
v.a 18(6)

NOTE—Contn. sheet.

WD 1233—GPB—60,000—1-12-16—S.

General and Revenue Secretariat. | Geol File No. 72 of 1917-18.

Serial No.

Cy

used) Please see Calcutta Statement
On 6 May 1914 Dr Smeeth said that the
Cost of preparation of such maps would
amount to about Rs 20,650
[5] Whether maps of the Kolar
Gold Field ~~of the Kolar Gold Field~~ should
should be prepared as suggested by
the Director. The Cost of the pre-
paration of such maps has not been
stated.

8) The Director wants a
provision of Rs 10,000 to be made
in the budget annually

P 14
of P.V.D.

9) The financial department
has to be consulted.

10) The question of the
improvement of the prospects of
the Gold ~~will~~ will be dealt with separately.
The Director has been requested to
obtain Dr Smeeth's opinion
Chief Secy) 21/1/18

one copy of
bulletin no 7 is put up
on file.

11) The programme is not in the
form required by Govt in the G.O. of 25th
July. The Offg Director enumerates a
list of items chiefly under General
explanation of Survey & in pages 11 & 13 of his

H

NOTE—Contn. sheet.

WD 1233—GPB—60,000—1-12-16—S.

5

G. R. S. III-2]

General and Revenue Secretariat. | Geol File No. 73 of 1917-18.

Serial No.

letter indicates a distribution of the work among the officers of the Dept. He does not however say which items will be taken up when during the ten-year period. A ~~Same~~ chronological programme is what is required by Govt. Though it may be difficult to say exactly when each item will be definitely completed, it is, I think, necessary to ~~but~~ lay down a rough division ~~of~~ of work arranged in sequence of time. The 10-year period may be divided into 2 periods of five years each & the items of work apportioned between these.

12) Then further detailed division may be gone into as regards the first five year period

13) As already stated in the Govt. of India's letter the programme is not meant to be absolutely hard & fast, but is intended to guide the work of the Dept generally, subject to changes for sufficient reasons

14) The details given under group C - Development of mining & metallurgical industries ~~do not form~~ are only a repetition

NOTE—Contn. sheet.

WD 1233—GPB—60,000—1-12-16—S.

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G. R. S. III-2]

General and Revenue Secretariat. | Genl File No. 73 of 1917-18.

Serial No.

of information given in 1915. No chronolo
Division or allotment by officers has been
attempted.

15) Probably there is not much
beside Current work to be done in
regard to Inspection of Mines & Explosives

16) As regards training of geologi
prospectors &c, no indication is given
about the number that may require
to be trained in the 10 year period or a
to how openings for employment can
be created by the stimulation of
private enterprise

17) The Surg Director has reopened
the question of Map printing which has
been decided in the Negative in Oct'la

18) On the whole the Director's
proposals require revision & rearrangemen
in the light of the directions already
issued by Govt.

2nd member)

337.
29.1.18.

19) I think all these may
be deferred pending return of
Dr Smeeth

20) The rough programme
needs technical scrutiny
the items mentioned by

NOTE—Contn. sheet.

L.3.18

11172
4948

WD 1233—GPB—60,000—1-12-16—S.

7

G. R. S. III-2]

General and Revenue Secretariat.	Geol File No. 73 of 1917-18.

Serial No.

2/ Submitted. Reference paragraph 19 above

AHS. 11-12-18 — 22 Dft consulting Dr Smeeth

Dne 13/12

Where is Memo? No 18/12

23 Submitted with a draft.

AHS 17-12-18 — 24 Dft and D.O. letter

Dne 17/12

MM AHS

25 Submitted with a draft D.O. letter.

AHS 20-12-18 — 26 Done

Dne 20/12/18

3 — To Dr W.F. Smeeth.

G. 13036 D 2-1-19

Requests that his suggestions in regard to the programme of work may be furnished early.

Recd 4/1 — From Dr W.F. Smeeth, Director, Dept of Mines & Geology

DO No. 1816 D 9-1-19.

States that it is not possible to draw up any programme of work until the question of reorganisation has been decided upon & suggests that the former question may await the disposal of the latter question.

27 Submit to Member with file

(Intd) C.S.B. 18-1-19.

28 Submitted with references.

AHS 17-1-19. — 29 Second Member

Dne 20/1/19

P.T.O.

L008-73

20-1-19

NOTE—Contn. sheet.

1172
4948-17 8

S.D. 1233—1,000—6.17.CC—1-12-16—S.

G. R. S. III-2]

General and Revenue Secretariat. | Genl File No. 73 of 1917-18.

Serial No.

Mr. Sweeth & I have talked the matter over & I do not think much progress can be expected under existing conditions. It was chiefly on account of this that I asked him to expedite the submission of his proposals about the re-organisation of his dept. His proposals have since been received in the form of a note & I have minuted also on it. If the Dewan approves this matter may be brought up for a preliminary discussion in the Council at one of its early meetings. Unless until Mr. S is relieved of routine work & put on special duty I fear he will be unable to do much & in order to afford him this relief, his Re-organisation Scheme both have the accepted generally at least as a tentative measure, [redacted]

Reel
22.1.19

31 Dewan

4144
25.1.19.

Ref
24/1/19

The proposals for the re-organisation should be considered with reference to the proposals both may be considered together — at an early meeting of the Council

4222-11.1
NOTE—Contn. sheet. 1-2-19

Second Member) P.J. 25.1.19

1117 - 18

4948
1117

WD 1233—GPB—60,000—1-12-16—S.

G. R. S. III-2]

General and Revenue Secretariat.	Geol File No. 73 of 1917-18.

Serial No.

If the Dewan approves Dr. Smeeth may be asked to attend the meeting & with I think enable the Council to arrive at a decision, easier & quicker, in this way.

Rell
28. 2. 19

Dewan)

5036
3-3-19

Yes I agree

CBZ
1/3/19
3/3/19.

4.3

Bor- note and put up to CBZ Council with Recrs. file - & send intimation to D! S. in time. Rno 6/3/19

CHIEF SECRETARIAT
IV
MINISTERIAL
18 NOV 1919

Orders have issued on the programme viz the Reorganisation order =

Recd. Rno 18/11

Submitted with a draft returning the Geological office file.

AAS
19-11-19

NOTE—Contn. sheet.

4948

WD 1233—GPB—60,000—1-12-16—S.

10

G. R. S. III-2]

General and Revenue Secretariat. | Geol. File No. 73 of 1917

Serial No. 5

To

The Director Dept. of Geol

G. 12563 dt 29. 11. 1919

Returns files nos 69 of 1909-11 and 70 of 1911-12 re the Programme of requirement of Geol: Deptt

CHIEF SECRETARIAT.
IV
MINOR Depts.
3 DEC 1919

4/12

NOTE—Contn. sheet.

D.M.G. 13]

WD 2037—GPB—2,000—7-13-17. 11

BANGALORE, 2nd January 1918.

No. 1552.

4948

FROM

B. JAYARAM, Esq., F.G.S.,

Director ~~(in charge)~~, Department of ~~Mines and~~ Geology,

Mysore State.

1917-1918 Geol 73-17

1867

To

C. S. Balasundaram Iyer, Esquire, B.A.,

Chief Secretary to the Government of

His Highness the Maharaja of Mysore.

SIR

With reference to paragraphs 2-5 of Government Order No. G.987-9 - G.M.292-14-5, dated 25th July 1917, I have the honour to submit herewith for the orders of Government a rough programme of work for the next ten years and suitable proposals for improving the prospects of the staff in developing the work of this Department.

Programme of Work.

In obedience to Government Order requiring a rough programme for a ten-year period, the following scheme has been drawn up in consultation with Dr. W.F.Smeeth and Mr. P.Sampat Iyengar.

Before dealing actually with the programme in question, a few remarks in regard to the future work of the Department are necessary.

The above said order approving of Dr. Smeeth's alternative programme B necessitates the attention of this Department to be devoted

devoted in future to the following:-

(1) Mineral Exploration and Survey.

(2) Development of mining and metallurgical industries.

(3) Inspection of mines and explosives, and

(4) Training of Geologists, Prospectors, etc.

and the Definitely abandoning or indefinitely deferring the revision of geological survey on scientific and systematic lines and the publication of a large half inch map.

---

(1) Mineral Exploration and Survey.

Bulletins Nos.5 and 7 go to show clearly that this part of the work had not been lost sight of, though it had to be subordinated to the geological survey and mapping work. In future, it will be made more prominent and will receive greater attention.

The work will naturally require a great deal of careful prospecting and the knowledge we already possess of the mineral resources of the State will materially help us to concentrate our attention and energy on prospecting for the following minerals and areas of immediate importance:-

(a) Iron Ores.

1. Though a sufficiently high grade iron ore has been developed in the neighbourhood of Kemmangundi, Bababudans, to last us a good many years, yet when smelting work is started we must do further work to try and keep supplies well ahead of requirements and permit of possible expansion. For this purpose, I propose the iron-ore deposits to the south of those that have already been proved and extending towards Attigundi should be extensively prospected, sampled and analysed.

2. We have already abundance of ore of a lower grade, but it is absolutely necessary to search specially for high grade low-phosphorus

ores

ores if we are going to manufacture special steels. To this end the iron-ores of the Gangur-Ubrani areas and those of the Chitaldrug schist-belt should be carefully examined and prospected.

(b) Manganese Ores.

The ores of manganese are chiefly confined to the districts of Shimoga, Chitaldrug and Tumkur. They require a good deal of studying, mapping and prospecting.

(c) Chrome Ores.

So far known, the deposits of chrome ores occur in the Hassan and Mysore districts.

1. With regard to the ores of the Hassan District we want further information as to where these occur and whether there is a large supply. So, careful mapping and prospecting will have to be done and proper pits dug and samples taken to determine the grade and whether there is any prospect of improving it.

2. The chrome ores of Shinduvalli in Mysore District want examination with a view to determining whether any considerable quantity of the higher grade ores can be expected.

(d) Limestone.

The limestones that we have found and tested may very well do for "flux" and "cement" purposes but even the best of them so far experimented upon, viz., the high calcium variety of Voblapur is not good enough for the production of carbide or cyanamid, or paper-pulp.

We should not, however, give up the search ~~year~~ yet; but continue the work on the limestones and ransack the State for higher grade material than we have yet found.

(e) Clays and Kaolins.

There

There is a growing demand for these classes of material and information regarding their distribution, mode of occurrence, available quantity and quality is badly wanted.

With regard to clay we are anxiously endeavouring to find a few deposits within easy reach of the Voblapur limestones, as the latter is good enough for the manufacture of cement and it is quite possible that the demand for cement may increase sufficiently to make it worth our while to manufacture it locally.

Besides, it is all important to locate and gather as much information as possible about all the available large clay deposits in the State for the purpose of brick and tile factories.

Regarding purer forms of clay and kaolin deposits, it is necessary to prospect and work these deposits in groups round several centres in the State. For instance, Bangalore or Golhalli may be taken as a centre and all the deposits within a radius of 10 or 15 miles may be thoroughly investigated with a view to find out how much raw material can be obtained from the area and what it would cost to supply or deliver a ton of it at the central station.

(f) Bauxite.

The bulk sample of the Bababudan bauxite-ore that was sent to Dr. Smeeth in England for experimental tests has unfortunately not yielded very promising results, but Dr. Smeeth is still hopeful and is making further enquiries.

I have also turned up a few deposits which require careful prospecting and testing. Work on these will be started during the ensuing field-season.

(g) Corundum.

Some samples of corundum were sent to America for expert opinion and the report obtained on some of them is quite favourable

With

With this information it seems very necessary to do some extensive prospecting in one or two well-known areas and organize a large supply of corundum in the hope of starting a local industry in the near future, i.e., when the war conditions cease and when facilities for obtaining the necessary plant, etc. become favourable.

(h) Graphite.

So far no prospecting work has been done on the mineral graphite and the information in our possession is both meagre and unpromising.

However, a few of the graphite bearing formations will be closely studied and prospected with a view to finally determine whether any graphite deposits of economic value really exist or not in the State.

(i) Earth-Soda.

The experimental results obtained up till now are not very satisfactory and Mr. Balaji Rao is at present engaged on the same work under the guidance of Drs. Sudborough and Watson.

It is hoped that at the end of the next field-season enough data will be available to permit us of making a definite statement.

(j) Quartzites and Sands.

A keen search will have to be made for certain classes of quartzites and sands and have these sampled and tested to see if we can get suitable material for making silica bricks and glass.

The above are some of the economic minerals that require our immediate attention, but a number of other minerals such as antimony, lead, zinc, silver, copper, asbestos, garnet, etc., and a few rare minerals such as monazite, columbite, etc., will also be

studied

studied and noted during the mineral exploration and survey work. Of course, washings and new indications for gold or any other mineral of economic importance will not be overlooked.

---

(2) Development of Mining and Metallurgical Industries.

(a) Mining.

Development of mining entirely depends on the favourable results obtained from extensive prospecting work, granting that we have all other facilities such as men, money, direction, etc.

If one or more of the minerals that will be prospected for, as outlined under section (1) or by private prospectors and companies turn out well, then there will be opportunities for developing mining industries in the State.

(b) Metallurgical.

1. Iron and steel will be the principal metallurgical industry, which we are likely to have.

With regard to the further developing and working of the Iron Scheme, we are somewhat in a quandry, since the order of the 25th July 1917, states that Government are already taking necessary action for the manufacture of iron and the attention of the Department should now be concentrated on the other minerals, etc. However, I presume that it is the intention of Government to utilize the services of this Department in working the iron smelting scheme.

For this scheme we shall want to train men for the iron-ore and limestone mining, for the smelting process, chemical work, electric steel refining and the treatment of charcoal and bye-products. There will be a good deal of experimental work and we shall want assistance who have had good training in physics and chemistry.

2. Ferro Alloys:- The industrial possibilities of manufacturing these Ferro-alloys have been sufficiently well dealt with in our Bulletin No.7.

No.7.

We can make ferro-manganese if there is enough charcoal available; but we are afraid that there will not be any for a long time.

If Government are prepared to supply cheap electric power at the smelting works for steel refining and the making of special steels, we can at the same time carry on experimental work on the electric production of ferro-manganese, ferro-chrome and alloy steels on the lines indicated in Bulletin No.7 P.108. P 113 If the power is not likely to be available for a long time, then it may be again urged that we put up a scrap steel plant in Bangalore and carry out these ferro and alloy experiments here.

3. Cyanamide:- We have not yet struck upon a high grade calcium limestone deposit of the right kind for the purpose of cyanamid. Every endeavour will be made to prove our deposits of limestone before we are driven to the necessity of having to import higher grade lime from Madras.

From the foregoing considerations it will be seen that a considerable amount of prospecting and analytical work on the minerals will have to be done before actual mining and metallurgical industries can be developed. Until the iron smelting works at Benkipur and our own laboratory which the Government have kindly sanctioned to be added on to the Lambourne House, are built and ready for large scale experimental tests and research work, we cannot hope to do anything better than concentrate much of our attention on the mineral exploration and survey work and depend on the Institute of Science and the Agricultural and Geological Laboratory for analytical results.

In this connection it is gratifying to note that Dr. Smeeth in spite of war worries and holiday hours has been able to devote a considerable amount of his time in getting as much inside

information

information as possible on the subjects of Cyanamid, Sulphuric Acid, Glass, Wood Distillation, Refractories, Electric furnaces for special steel, Electro alkali, etc. - in fact anything that he could get hold of likely to be of use to us here. All his up-todate experience and information will be of immense use and any further recommendations and proposals that he may have to make on his return ought also to be of great interest.

---

(3) Inspection of Mines and Explosives.

(a) Inspection of Mines.

As desired by Government, the Chief Inspector of Mines in Mysore will pay careful attention to see that all possible precautionary and preventive measures are taken to ensure the safety of the lives of the workmen.

(b) Inspection of Explosives.

At present this work has been carried out by Mr. A. T. Setlur in addition to the inspection of minor mines and collection of statistics, etc. This duplication of appointments and duties with the resultant loss of efficiency and responsibility has been found very in convenient and unsatisfactory.

I sought the advice of Dr. Smeeth with regard to improving the existing unsatisfactory state and he has kindly favoured me with his views in the matter:-

"We should not miss the opportunity of making a radical and very desirable change to which end I make the following proposals:-

Mr. Setlur should be appointed simply Inspector ~~of~~ or Chief Inspector of Explosives and give his full time to the work, including the issue of licenses. He should be relieved of any duties as Deputy Inspector of Mines - an arrangement which has

not

"not proved to be satisfactory in any way - and also of his duties as Mining Surveyor for which his high rate of pay renders his services much too expensive.

He would be assisted by an Assistant Inspector of Explosives and these two officers should be able to carry on the whole of the work at present necessary With regard to this assistant it is most important that he should be a young man of ability with training in Physics and Chemistry who would develop into an expert officer capable of taking complete technical charge of the work at a future date in succession to Mr. Setlur

The post of Deputy Inspector of Mines should be abolished - it is an anachronism and has only continued as a temporary measure in order to make some sort of a post to Mr. Setlur.

In lieu of this, one or two Sub-Assistant Inspectors of Mines should be taken on. One of these might be selected from the students in training - if any of them have shown sufficient ability. He should be capable of taking on the mine survey work as part of his duties. We should consider the advisability of selecting the other with mathematical ability and mechanical and engineering training in order to specialize on the inspection of machinery on the mines - a branch in which we are deficient."

---

(4) Training of Geologists, Prospectors, etc:

This work is of immense value to the students of Mysore and the State and every effort will be made to give the right training to our students.

Here I wish to point out that the three Probationers who have been given a sound preliminary training in Geology, Mining and

Chemistry

Chemistry should be given further opportunities to gain experience and to learn precise methods of work. To this end I have recommended them to be confirmed in this Department.

Definitely abandoning or indefinitely deferring the revision of the Geological Survey on scientific and systematic lines and publications of maps on the ½ in. scale.

With regard to this question, all survey work on scientific and systematic lines shall be dropped, but we think it our duty to again press most earnestly for permission to revise and correlate the large amount of work already done and to issue a consolidated map on the ½ inch scale.

If we are not allowed to do this, a large amount of the knowledge and experience which has been so painfully acquired must inevitably be lost. This is a very different suggestion from the revision of the survey in the field as outlined in Dr. Smeeth's Programme A, and it will at least allow us to consolidate, record and leave it in an accessible form the knowledge so far gained in accordance with our most recent views. It will be therefor the use of those who deal with matters of which geological survey forms the basis and for those who, in future years, will be called upon to again take up the scientific development of the survey from the point at which we are now compelled to abandon it.

We therefore put it in the forefront of our programme, the correlation and consolidation of the survey results so far obtained - the publication of a ½ inch map in separate sheets and the preparation of descriptive Bulletins to accompany the sheets. This work will have to be done by Mr. Sampat Iyengar and myself, under Dr. Smeeth's supervision, during a portion of each recess period leaving the field-seasons free for special investigations of minerals - an arrangement which will not materially clash with the carrying out of the items of work as outlined in sections (1), (2), and (4).

We

We regard this work as absolutely essential and it must be taken in hand now before we lose the services of the Officers who have the necessary experience.

Kolar Gold Field:- The next item in this connection is an account of Geology of the Kolar schists and of the character and distribution of auriferous veins. This is work which may be of considerable assistance for future progress and there is little doubt that we are going to encounter difficult times and problems It will mean preparing and publishing the ½ inch sheets enclosing the Kolar schist belt, the preparation of a larger scale map (probably 4 inches to the mile) of the Kolar field itself and still larger plans and diagrams of the auriferous veins and their geological associations with necessary Bulletins. The work should be carried out by Dr. Smeeth and myself to take advantage of the experience we have already gained and I will have to devote my whole time to it for, say, couple of years.

With the foregoing general observations, the specific work that is intended to be carried out by the several officers during the ten-year period is outlined as follows:---

Ten-year Programme.

Work to be done.	Name of Officer.
(i) General:- General guidance and supervision as Head of the Department. (ii) Special:- Special attention to the development of mining and metallurgical industries in the State.	Dr. Smeeth.
(i) General:- Mineral exploration and survey of the State, in the first instance of certain portions of the Shimoga, Chitaldrug and Tumkur Districts for finding out and locating the rich, low-phosphorus iron ores and manganese deposits, etc.; also a special survey of the Kolar schist belt. (ii) Special:-	Mr.B.Jayaram.

Work to be done.	Name of Officer.
(ii) Special:- 1. Investigation of the limestone deposits of the State for the manufacture of Calcium Cyanamid, cement, paper pulp, etc. 2. Examination of the occurrences of ochres and slates and to suggest industrial uses for these materials. 3. Working up of the corundum resources of the State. 4. Further examination of the bauxite deposits in the State with a view to ascertain the possibilities of manufacturing aluminium. 5. Noting the ornamental building stones and their uses.	Mr.B.Jayaram.
(i) General:- Mineral exploration and survey of the State, starting with the examination of the unexplored Western Ghats and to locate mineral occurrences in the Sagar taluk, chiefly iron and bauxite ores. (ii) Special:- 1. To investigate the kaolin deposits with a view to find out the necessary data for industries like porcelain, etc. 2. To conduct investigations on magnesite and chromite. 3. To study and experiment on the possibilities of making ferro-chrome, ferro-manganese and ferro-alloys. 4. To examine the occurrences and the economic value of the copper deposits in Ingadhal and Nanjangud.	Mr. P. Sampat Iyengar.
(i) General:- Departmental museum work and the formation of district museums. (ii) Special:- 1. To study and examine the graphite, lead and antimony deposits of the State. 2. To conduct and supervise the trial washings for gold. 3. To collect and note statistics relating to the development of metallurgical problems. 4. To carry on experimental tests on minerals in the laboratory, when ready.	Mr. A.M.Sen.
(i) General:- Exploration and prospecting for minerals in the State. (ii) Special:-	Mr. B. N. Venkata ramayya.

Work to be done.	Name of officer.
(ii) Special:- 1. Examination of the iron ore deposits of the Bababudans with a view to locate the rich and workable bodies and estimate their quantity. 2. Prospecting for bauxite deposits and testing materials for making silica and other refractory bricks. 3. Noting and prospecting felspar veins. 4. Studying and finding the necessary materials for the manufacture of glass. 5. Examination of mica and asbestos occurrences in the State and to suggest uses for the same.	Mr. B.N.Venkataramayya.
(i) General:- Exploration and prospecting for minerals in the State. (ii) Special:- 1. To conduct field and laboratory tests on earth-soda with a view to find out the feasibility of making sodium carbonate and sodium chloride. 2. Further prospecting on limestone deposits of the State to help the investigation on the manufacture of cyanamide, cement, etc. 3. Location and prospecting of the clay deposits of the State and studying the possibilities of a cement industry. 4. Finding of rich deposits of garnet and the industrial use for the mineral. 5. Revision of the old workings for gold.	Mr. B. Balaji Rao.

The above items of work are of such a nature that it is not possible and desirable to arrange them according to any chronological order or scheduled time, as they require to be taken up in their order of urgency and importance. They involve a considerable amount of prospecting and experimental work, which will presumably take ten or even more years to yield definite results.

In order that the work may be accomplished as speedily and satisfactorily as possible, I think that there will be need for the services of specialists from time to time and that the permanent staff of officers should be allowed opportunities to visit and study mining and metallurgical districts outside the State.

State. It is also very necessary that the services of the three geological probationers should be utilized in this Department. These as well as the six fieldsmen will be of great help to the several officers of this Department under whom they will be deputed to learn and work.

To enable the Department to carry on the large prospecting and experimental works, a lumpsum annual grant of Rs.10,000/- may kindly be sanctioned.

Improvement of the prospects of the staff.

While the work of the Department is growing by leaps and bounds owing to reorganization order of the Government, dated February 1915, and various economic activities, and the working staff of officers in the Geological branch of the Department instead of being augmented has been kept very low. It is obvious that the bulk and the more important scientific work of the Department is done by officers of this Branch and yet their work and worth are not sufficiently appreciated and remunerated.

That the existing grades of pay and prospects of these officers are most ~~unsatisfa~~ unsatisfactory and inadequate will be readily seen by a consideration of the following facts:-

1. There is at present a very disproportionate gap between the grades of pay of the Director (Head of the Department) and the senior officer next in rank to him in the geological branch, viz., the Senior Geologist.

2. In the Mining Branch, the Chief Inspector of Mines, who ranks next to the Director, draws a grade pay of Rs.750-50-1000 plus allowances; whereas the Senior Geologist draws only Rs.400-30-700 even though he is expected to be competent enough to do the more important scientific work and the ex-officio duties of the Department.

3. Similarly also there is a considerable disparity in the several

several grades below and these are so adjusted that when an Assistant Geologist drawing a salary of Rs.400 and upwards is appointed to officiate for the Senior Geologist, he gets no acting allowance at all. The present case of Mr. Sampat Iyengar who has been Offg. Senior Geologist for a period of well over a year without any allowance whatever, may be cited as a provoking point at issue.

4. Besides, the present grade of pay and prospects of Mr. Sampat Iyengar are far too inadequate for a man of his experience and ability. He was, as the Government may be aware of, Professor of Geology, sub. pro-tem, in the Central College, Bangalore, and if he had been allowed to continue there, he would have had the chance of being confirmed in the grade of Rs.500-50-1000. But his services were withdrawn from the Central College in the interests of the exigencies of this Department and it is but fair, therefore, that he should be given a reasonable grade of pay and prospects here.

5. The Government were pleased to appoint Mr. Sen in this Department as Assistant Geologist with a special grade of pay Rs.300-50-500 and subsequently confirmed him in the grade of Rs.300-50/2-450. He has nothing better to look forward in the near or distant future.

6. Messrs. Venkataramayya and Balaji Rao are still in the Sub-Assistant Geologists' grade drawing only Rs.150 after nearly fifteen years of approved hard and intelligent work Even the inexperienced geology graduates have been entertained by Tata's on higher pays and have since improved their prospects. The present case of Mr. Vyasa Rao may be pointed out as a pertinent example. Under these conditions they naturally feel greatly grieved and their case certainly deserves betterment.

7. The recommendations regarding the confirmation of the three

three geological probationers in this Department are now before the Government. The new geological probationers that are employed under the new scheme of recruitment of officers will have to be provided with a grade not inferior in pay and prospects to that of the existing Sub-Assistant Geologists.

8. In general, the nature of the work is such that it can only be efficiently carried out by highly trained scientific men, who possess sustained physical endurance and mental activity. Such men are not easily made or obtained. Since the scope and field for rising in ranks in or outside the Department are so limited and scarce, it is very necessary that every grade of pay is itself made liberally, even lavishly, attractive.

9. Lastly the pay, prospects and status of the Registrar deserve to be improved. The present Registrar - Mr. Varadaiya - who succeeded Mr. B. Subba Rao, has earned the appreciation of Dr. Smeeth and myself for the efficient way in which he has discharged the onerous and responsible office work.

The recent audit and report by Mr. Datta also go to show that he has maintained the office and cash accounts beyond any reproach or suspicion ever since he took over charge of the Registrar.

Since the Director has little time to spare for supervising the accounts, routine, office and less technical matters, it becomes very necessary that much of the responsible office work should be solely entrusted to him. Hence it is highly desirable that he should be ranked among the Gazetted Officers with a suitable grade of pay.

For these reasons I have been compelled to submit, most respectfully, the following revised scale (vide statement enclosed) for the kind consideration and sanction of Government.

In conclusion, I may be permitted to point out that at no time in

the

the annals of the world's history has the indispensable value and worth of scientific work and men been so preeminently appreciated and felt even among the advanced Western countries as during the present war. The material progress and prosperity of any nation or country will very largely depend on its possession of sound scientific knowledge and men. Hence the aim of our Government and this Department should be to acquire all such knowledge and to make useful scientists in the State at any cost. In other words our work should be such as to obtain far-seeing and far-reaching results of a permanent value without being merely commercial and industrial in its character

I have the honour to be,

Sir,

Your most obedient servant,

B. Jaya Ram.

Offg. Director,

Department of Geology.

KSS.

Present Scale.				Propos	
Designation.	Name of officer.	Existing grade	Present Salary.	Designation.	Name of
				Direction.	
Director, Department of mines & Geology.	Dr. W. F. Smeeth, M. a., D. Sc, et.	1500-100-1800 + 200 P. a.	1800 + 200 Pa	Director, Department of mines & Geology.	Dr. W. F. Smee
Registrar.	Mr. M. Varadaiya, B. a.	100-10-150.	130.	Registrar.	Mr. M. Varad
				Mineral Exploration and	
Senior Geologist	Mr. B. Jayaram, F. G. S.	400-30-700.	580.	Superintendent.(2)	Mr. B. Jay
Assistant "	" P. Sampat aiyengar, M. a.	300-$\frac{50}{3}$-450 +50 Pa.	500.	Deputy "	" P. Sam
				Deputy "	Vacant.
Assistant "	" a. M. Sen, M. Sc., F. G. S.	300-$\frac{50}{3}$-450 +50 Pa.	500.	Assistant Geologist.	Mr. a. M. S
Sub- asst. "	" B. N Venkataramaya, B. a.	100-$\frac{25}{2}$-250.	150.	Do.	" B. N. Venk
Sub- asst. "	" B. Balaji Rao, B. a.	100-$\frac{25}{2}$-250.	150.	Do.	" B. Balaji
Geological Probationer	" J. P. Kailasam, B. a., a. R. C. S.	100.	100.	Sub- asst. Geologist.	" J. P. Kailo
Do.	" B. Rama Rao, M. a.	75.	75.	Do.	" B. Rama
Do.	" V. J. Ramgopal, B a.	75.	75.	Do.	" V. J Ramg
				Geological Probationers	" V a. Krish
					and others
					be appointe
					Recruitm
					Sanctioned in
					9102/G m.
					2nd Janua

Dated: Bangalore,
2nd January 1918

Scale.		
ffice.	Proposed grade.	Remarks.
, M. a., B.Sc.	1500-100-1800+200 P.a.	
iya, B. a.	200-10-250.(1)	(1) This grade corresponds to that sanctioned for the Personal assistant to the Conservator of Forests.
Survey.		
arm, F.G.S.	800-100-1200.	(2) This designation is in vogue in the Geological Survey of India.
t. Aiyengar, M. a.	500-50-750.	(3) ..
(3)	500-50-750.	Mr. a M Sen may eventually be promoted to this grade. For the present, however, he may be regarded as super-
, M. Sc, F.G.S.	300-$\frac{50}{3}$-450+50 P.a	(4) numerary in the grade of Assistant Geologist.
ramayya, B. a.	300-$\frac{50}{3}$-450.	
'ao, B. a.	300-$\frac{50}{3}$-450.	
m, B.a., a.R.C.S.	100-25-250.	(4) It is desirable not to fix the number of appoint-
o, M. a.	100-25-250.	ments in these grades but to leave them open for de-
al, B.a.	100-25-250.	serving men as circumstances may require.
murty, B.a.	75	
reafter to		
under the		
t Scheme		
G. O. No. 9060-		
1-16-1, dated		
y 1917.		

B. Jaya Rau.
Offg. Director,
Department of Geology.

Serial No.	A Government Order of 25th July 1917 on the programme of work.	B Proposals now made by the Offg. Director, Department of Geology.	b REMARKS
1	Mineral Exploration and Survey. (The Director was requested to frame a rough programme for a ten-year period. His proposals are set forth in Col B.)	The attention of the Department will be concentrated on prospecting for the following minerals. pp. 2 to 6 Iron Ores. near Attigundi and Gangur - Ubrani area Those of Chitaldrug Schist-belt. Manganese ores in the Shimoga, Chitaldrug and Tumkur Districts. Chrome ores in Kolar, Mysore & Hassan districts. Lime-stone all over the State. Clays and Kaolines in several parts of the State especially in the Bangalore and Tumkur Districts. Bauxite, Corundum, Graphite, Earth-soda Quartzites and sands and a number of other minerals such as antimony, lead, zinc, silver, copper, asbestos, garnet, etc and monazite, columbite etc.	
2	Development of Mining and Metallurgical Industries.	The Director presumes that it is the intention of the Government to make use of the services of his department in working the Iron Smelting Scheme and he --	

Attention of the Department should be concentrated on such minerals as ferro-manganese, chrome, lime, clay and gold.

requires the assistance of men trained in physics and chemistry.

Ferro-manganese can be made if enough charcoal supply is available but there is not likely to be any for a long time to 1947

Experimental work on the electric production of ferro-manganese, ferro-chrome and alloy steels on the lines indicated in Bulletin No.7 can be carried on if cheap electric power is supplied at the smelting works for steel refining and the making of special steels; otherwise a scrap of steel plant will be put up in Bangalore and ferro and alloy experiments carried on there.

So far a high grade calcium limestone deposit of the right kind for the purpose of cyanamide has not been found but every attempt will be made to prove the limestone deposits before importing high grade lime from Madras.

Thus a considerable amount of prospecting and analytical work on the minerals will have to be done before actual mining & metallurgical industries can be developed.

Till the smelting works at Benkipur and the laboratory at the Lanbourne House are constructed, the Department can only concentrate much of their attention on mineral exploration and survey work and depend on the Institute of Science and Agricultural and Geological Laboratory for analytical results.

17

3	Inspection of Mines. Accidents on the mines have been of late rather frequent. In individual cases, the Company's staff have always been exonerated from any responsibility for them. But the question -- deserves closer examination in order to see whether any and if so, what preventive measures are necessary to ensure the safety of the lives of workmen and -- whether the mining companies have made adaquate provision for the same.	Inspection of Mines. The Chief Inspector of Mines in Mysore will see that all possible precautionary and preventive measures are taken to ensure the safety of the lives of the ~~the~~ workmen. P.P Inspection of Explosives. PP 9 9 9 Mr.A.T.Setlur may be relieved of his duties as Deputy Inspector of Mines and appointed simply Inspector or Chief Inspector of Explosives and given an Assistant. The post of Deputy Inspector of Mines may be abolished and one or two Sub-Assistant Inspectors of Mines appointed. Training of Geologists, Prospectors etc. pp. 9 9 10 They will be trained on right lines. They may be confirmed. Publication of maps on the ½ inch scale etc. pp. 10 7 11	This question should be dealt with separately

Requests permission to revise and correlate the large amount of work already done and to issue a consolidated map on the ½ inch scale.

tion of a half inch scale for the map was sanctioned. The preparation of such a map of the State was one of the items comprised in programme A, which was one of the alternative programmes for a -- period of ten years forwarded by Dr.Smeeth on 11-11-1915. But programme B was approved by Government. This practically meant that the question of the preparation and publication of such a map was deferred.

Flag X

Geology of the Kolar Schists p. 11

Preparation of the ½ inch sheets enclosing the Kolar schist belt and of a larger scale map (4 inches to a mile) of the Kolar Field are necessary. The work will be carried out by Dr.Smeeth and Mr.Jayaram.

Funds. p 14

A lumpsum annual grant of Rs.10000/- may be sanctioned to enable the Department to -- carry on the large prospecting and -- experimental works.

62

21/1/18

20/12

G. R. S. VI—G/32]

SUBJECT.....

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Draft Geol 73-17-3

Diary 13036

General and Revenue Secretariat,

Dated, Bangalore, ~~December 1918~~ 2.1.19.

GENERAL

Dear Sir,

Date

Please refer to Mr. Jayaram's Official Letter No.1552 dated 2nd January 1918 forwarding for orders of Government a programme of work for your department for the next ten years. As Government should like to have your views in the matter before passing orders I am desired to request you to kindly furnish your suggestions in ~~reference~~ regard to the programme at a very early date.

Signa

Please

(draft) Yours sincerely,

M Venkatasubbaiyar

Dr. W.F.Smeeth, M.A., D.Sc.,

Director, Department of Mines and Geology.

over.

20/11

DEPARTMENT OF MINES AND GEOLOGY
MYSORE STATE.

No. 11172

Bangalore, 9th January 1919

Dear Sir,

With reference to your D.O. letter No.G.13036/Geol. 73-17-2, dated the 2nd January 1919, I have to state that it is not possible to draw up any reasonable programme of work for this Department, until the question of the reorganization of the Department and the number and distribution of officers has been finally decided upon. I beg, therefore, that the whole question be deferred until this has been done.

Yours sincerely,

C.S.Balasundaram Iyer, Esq., B.A.,
Chief Secretary to the Government
of H.H. the Maharaja of Mysore,
Bangalore.

G. R. S. VI—G/32]

SUBJECT.....

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Diary No. of letter replied to.....

GENERAL AND REVENUE SECRETARIAT

the *191*

Date of issue..... 29/4

Signed by.....

Section Geol
File No. 73-17
Serial No. 5

No. G/12563 (2 fls)

To

The Director, Dept of Geology

Sir,

I am directed to return herewith (or marginally noted) files of your office received for reference in this office on 18-1-18.

I have etc

21/4

for relief keeper to govt

File no 69/~~of 10~~ of 1909-1910 Part B. relating to the publication of a Geological map on 1/2" scale.

File no 70 of 1911-12 re-the programme of requirements of the Geological dept leading to the issue of govt orders dt 24-2-1913 and 5-10-1917 respectively

over.

14/11